Dell Latitude E6330
Owner's Manual

Regulatory Model: P19S
Regulatory Type: P19S001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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1

Working on Your Computer

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance**

△ **CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.**

△ **CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.**

△ **CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.**

△ **CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.**

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).
3. If the computer is connected to a docking device (docked) such as the optional Media Base or Battery Slice, undock it.

   △ **CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.**
4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

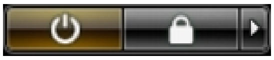
Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:
   – In Windows 8:
      * Using a touch-enabled device:
         a. Swipe in from the right edge of the screen, opening the Charms menu and select **Settings**.
         b. Select the ⏻ and then select **Shut down**
      * Using a mouse:
         a. Point to upper-right corner of the screen and click **Settings**.
         b. Click the ⏻ and select **Shut down**.
   – In Windows 7:
      1. Click **Start**.
      2. Click **Shut Down.**

   or

      1. Click **Start**.
      2. Click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down.**.



2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

⚠ **CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.**

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

   ⚠ **CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.**
3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

2

Removing and Installing Components

This section provides detailed information on how to remove or install the components from your computer.

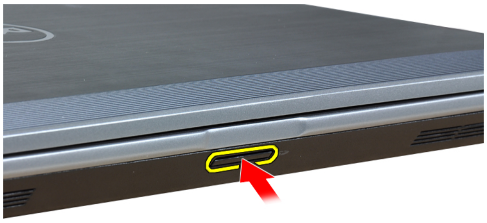
Recommended Tools

The procedures in this document may require the following tools:

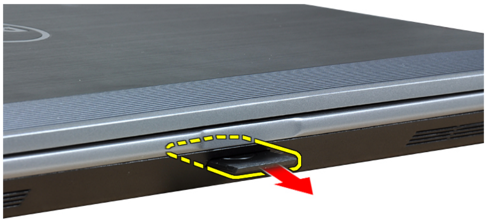
- Small flat-blade screwdriver
- Phillips screwdriver
- Small plastic scribe

Removing the Secure Digital (SD) Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Press in on the SD card to release it from the computer.



3. Slide the SD card out of the computer.

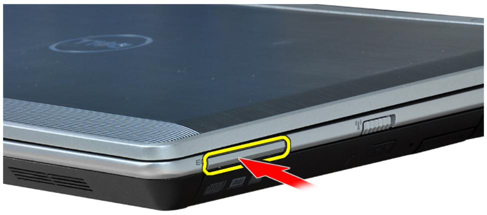


Installing the Secure Digital (SD) Card

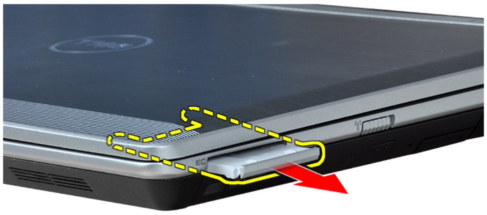
1. Slide the SD card into its slot until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer.*

Removing the ExpressCard

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Press in on the ExpressCard to release it from the computer.



3. Slide the ExpressCard out of the computer.

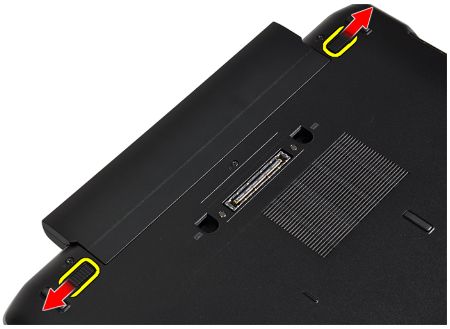


Installing the ExpressCard

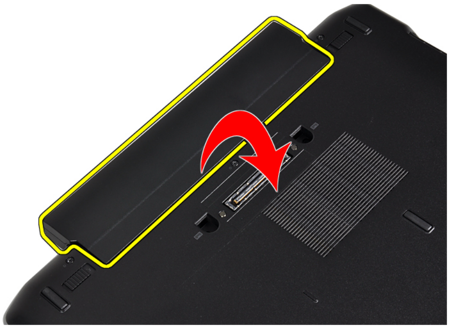
1. Slide the ExpressCard into its slot until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer.*

Removing the Battery

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Slide the release latches to unlock the battery.



3. Remove the battery from the computer.

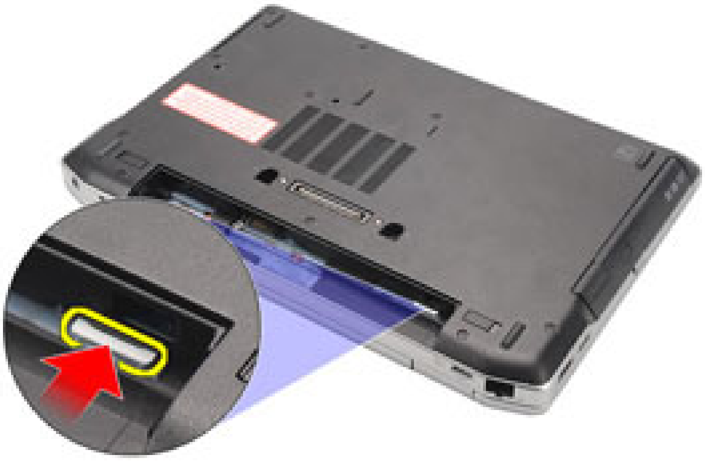


Installing the Battery

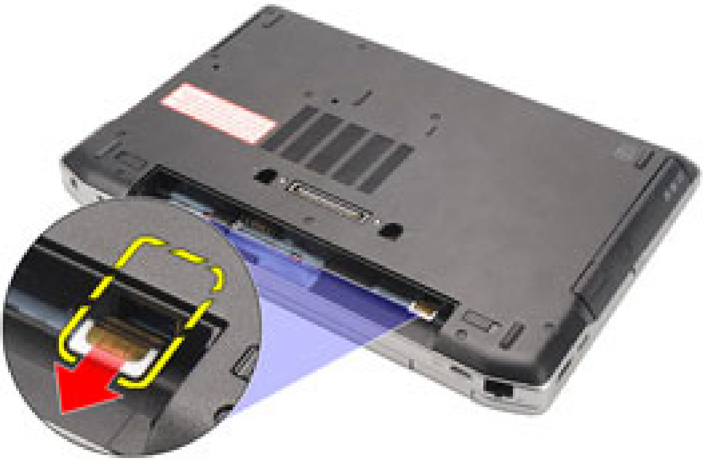
1. Slide the battery into its slot until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer.*

Removing the Subscriber Identity Module (SIM) card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Press in on the SIM card to release it from the computer.



4. Slide the SIM card out from the computer.

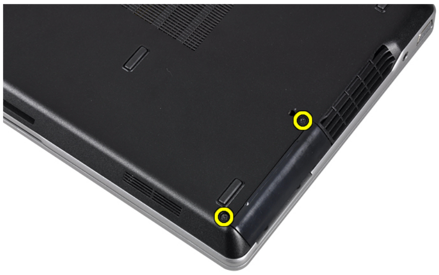


Installing the SIM Card

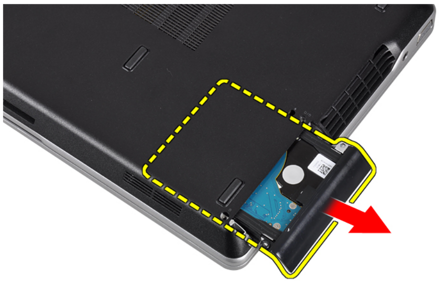
1. Slide the SIM card into its compartment.
2. Install the battery.
3. Follow the procedures in *After Working Inside Your Computer*.

Removing the Hard Drive

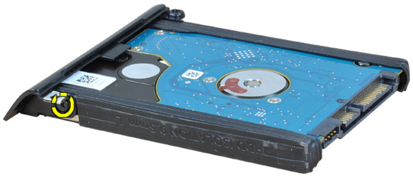
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the screws that secure the hard drive to the computer.



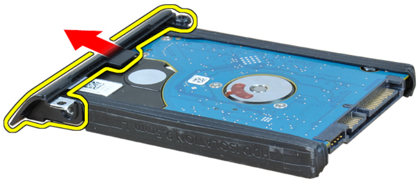
4. Slide the hard drive out of the computer.



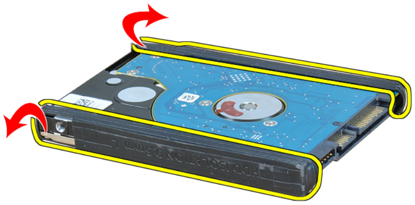
5. Remove the screw that secures the hard-drive bracket to the hard drive.



6. Pull the hard-drive bracket out of the hard drive.



7. Remove the hard-drive isolations from the hard drive.

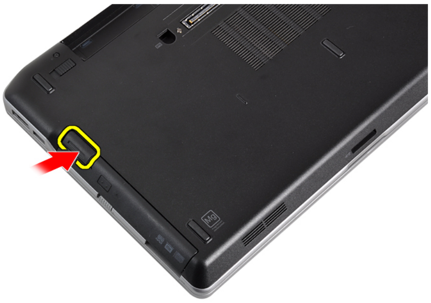


Installing the Hard Drive

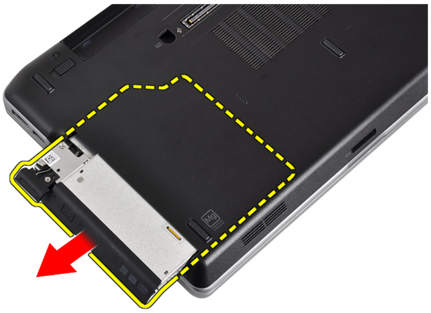
1. Install the hard-drive isolations on the hard drive.
2. Attach the hard-drive bracket to the hard drive.
3. Tighten the screw that secures the hard-drive bracket to the hard drive.
4. Slide and insert the hard drive into its slot.
5. Tighten the screws to secure the hard drive to the computer.
6. Install the battery.
7. Follow the procedures in *After Working Inside Your Computer*.

Removing the Optical Drive

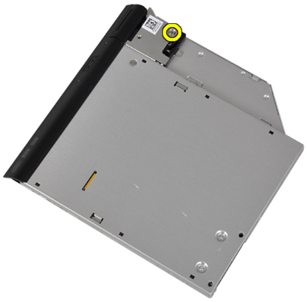
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Push in the eject handle on the optical drive to release it.



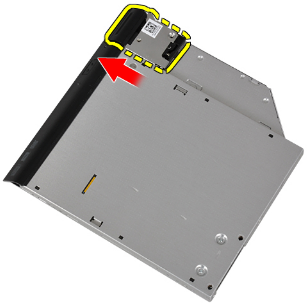
4. Slide and remove the hard drive out of the computer.



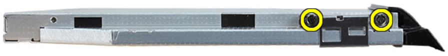
5. Remove the screw that secures the drive latch to the optical drive.



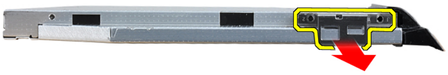
6. Remove the drive latch from the optical drive.



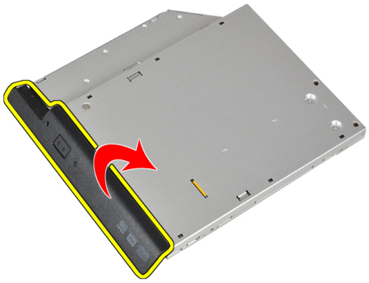
7. Remove the screws that secure the drive-latch bracket to the optical drive.



8. Remove the drive-latch bracket from the optical drive.



9. Pull and remove the drive caddy away from the optical drive.



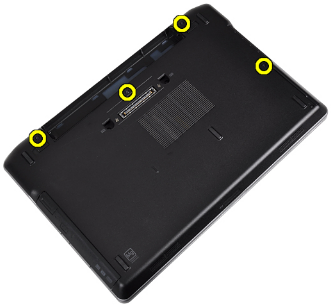
Installing the Optical Drive

1. Secure the optical drive caddy to the optical drive.
2. Secure the drive-latch bracket to the optical drive.

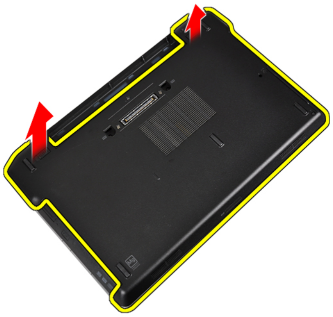
3. Tighten the screw to secure the optical-drive latch to the optical drive.
4. Secure the drive latch to the optical drive.
5. Tighten the screw to secure the optical drive latch.
6. Slide the optical drive into its slot.
7. Flip the computer, and push in the eject handle to secure the optical drive.
8. Install the battery.
9. Follow the procedures in *After Working Inside Your Computer*.

Removing the Base Cover

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the screws that secure the base cover to the computer.



4. Lift the base cover to remove it from the computer.

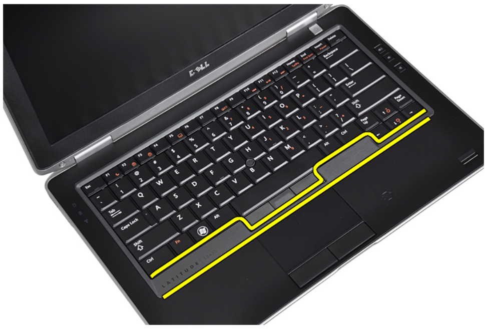


Installing the Base Cover

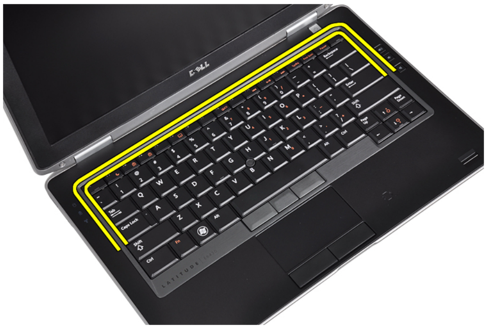
1. Place the base cover to align with the screw holes on the computer.
2. Tighten the screws to secure the base cover to the computer.
3. Install the battery.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Keyboard Trim

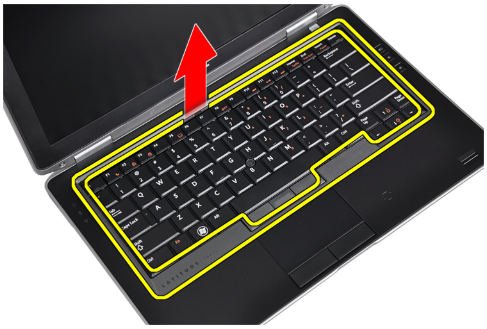
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Using a plastic scribe, pry under the keyboard trim to release it from the computer.



4. Pry the keyboard trim along the sides and bottom.



5. Lift up to remove the keyboard trim from the unit.



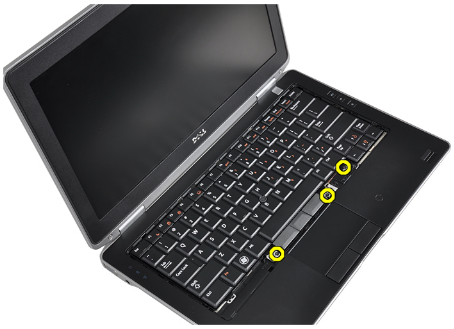
Installing the Keyboard Trim

1. Align the keyboard trim to its slot.
2. Press along the sides of the keyboard trim until it clicks in place.
3. Install the battery.
4. Follow the procedures in *After Working Inside Your Computer.*

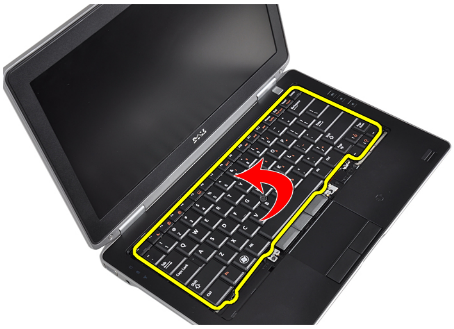
Removing the Keyboard

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the keyboard trim.
4. Remove the screws that secure the keyboard to computer.

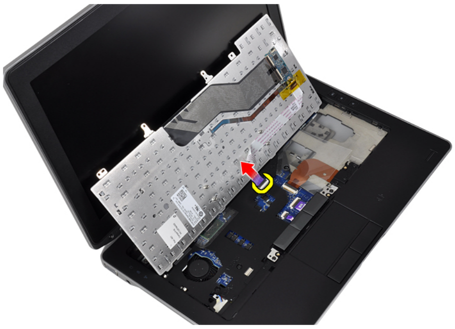
5. Remove the screws that secure the keyboard to palmrest assembly.



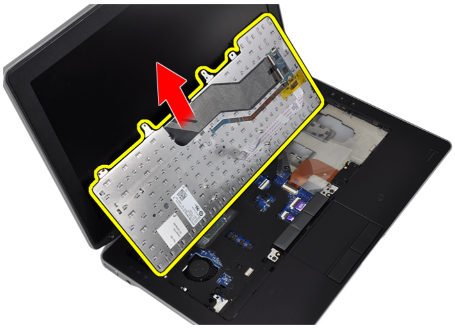
6. Lift and turn the keyboard to access the keyboard cable.



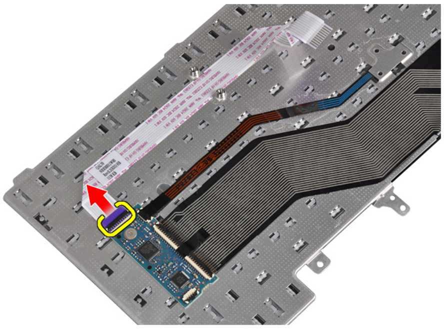
7. Disconnect the keyboard cable from the system board.



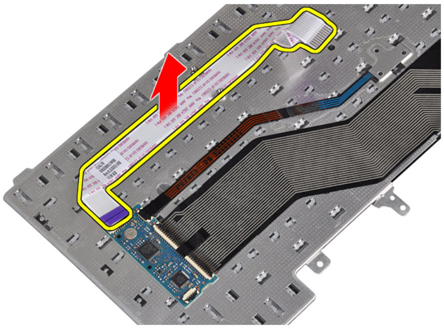
8. Remove the keyboard from the computer.



9. Disconnect the keyboard cable from the keyboard.



10. Remove the keyboard cable from the keyboard.

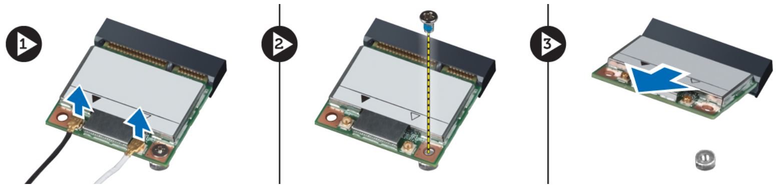


Installing the Keyboard

1. Connect the keyboard cable and secure it to the keyboard using the tape.
2. Connect the keyboard cable to the system board.
3. Slide the keyboard into its compartment and ensure that it clicks into place.
4. Tighten the screws to secure the keyboard on the palmrest.
5. Flip the computer and tighten the screws to secure the keyboard.
6. Install the keyboard trim.
7. Install the battery.
8. Follow the procedures in *After Working Inside Your Computer*.

Removing the Wireless Local Area Network (WLAN) Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the base cover.
4. Disconnect the antenna cables from the WLAN card and remove the screw that secures the WLAN card to the computer. Remove the WLAN card from the computer.

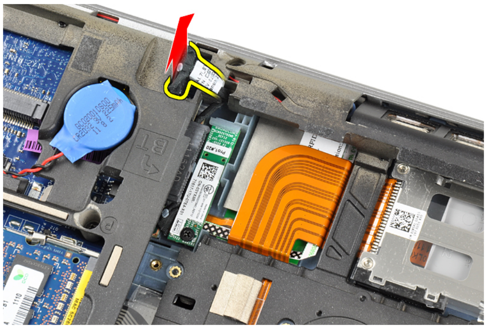


Installing the WLAN Card

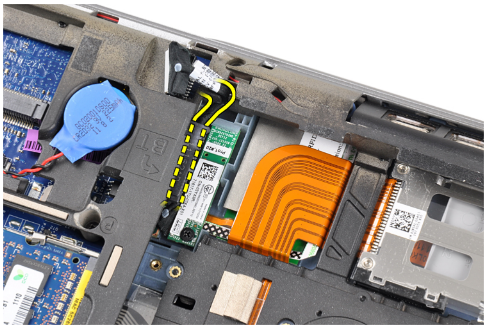
1. Insert the WLAN card into its connector at a 45–degree angle into its slot.
2. Connect the antenna cables to their respective connectors marked on the WLAN card.
3. Tighten the screw to secure the WLAN card to the computer.
4. Install:
   a) base cover
   b) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Bluetooth Module

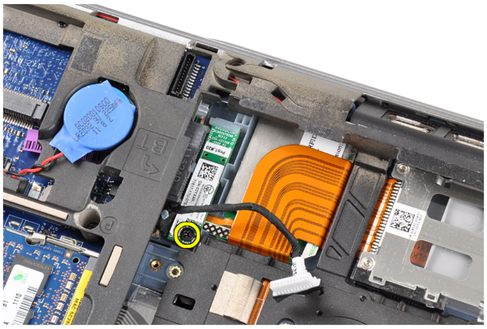
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the base cover.
4. Disconnect the bluetooth cable from the system board.



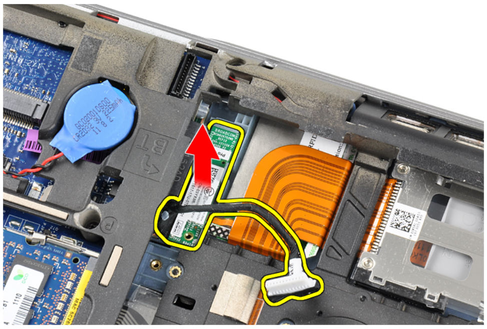
5. Remove the bluetooth cable from its routing on the computer.



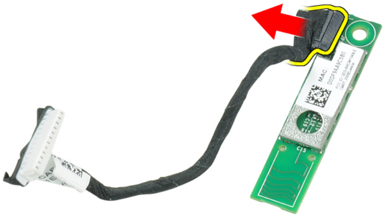
6. Remove the screw that secures the bluetooth module to the computer.



7. Remove the bluetooth module from the computer.



8. Disconnect the bluetooth cable from the bluetooth module.



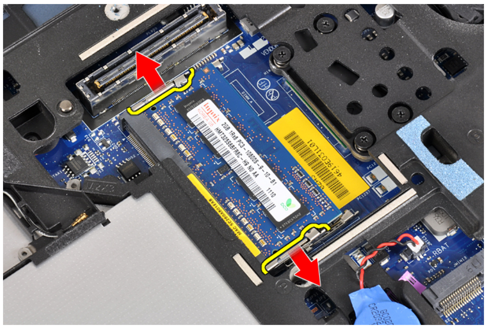
Installing the Bluetooth Module

1. Connect the bluetooth cable to the bluetooth card.
2. Connect the other end of the bluetooth cable to the system board.

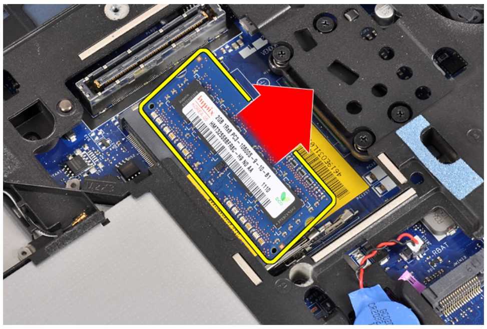
3. Place the bluetooth card in its location in the computer.
4. Tighten the screw to secure the bluetooth card to the system board
5. Install:
   a) base cover
   b) battery
6. Follow the procedures in *After Working Inside Your Computer*.

Removing the Memory

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the base cover.
4. Pry the securing clips away from the memory module until it pops up.



5. Remove the memory module from its connector on the system board by drawing the module from the system board at 45-degree angle.



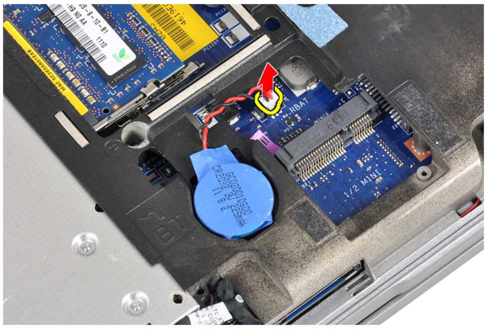
6. Repeat steps 2 and 3 to remove the second memory module.

Installing the Memory

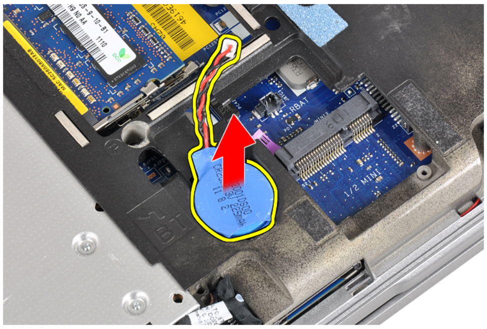
1. Insert the memory module into the memory socket.
2. Press the securing clips to secure the memory module to the system board.
3. Install:
   a) base cover
   b) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Coin-Cell Battery

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the:
   a) battery
   b) base cover
3. Disconnect the coin-cell battery cable from the system board.



4. Remove the coin-cell battery from the computer.



Installing the Coin-Cell Battery

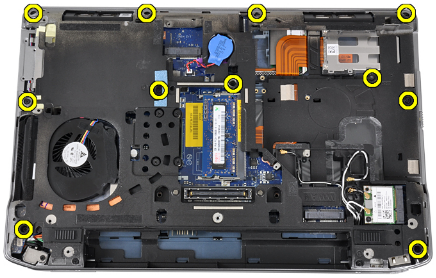
1. Place the coin-cell battery in its slot.
2. Connect the coin-cell battery cable.
3. Install:
   a) base cover
   b) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Palmrest

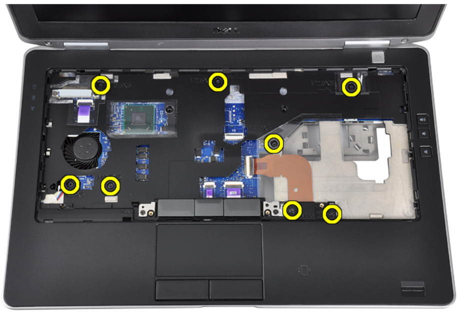
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive

e) optical drive
f) base cover
g) keyboard trim
h) keyboard
i) bluetooth module

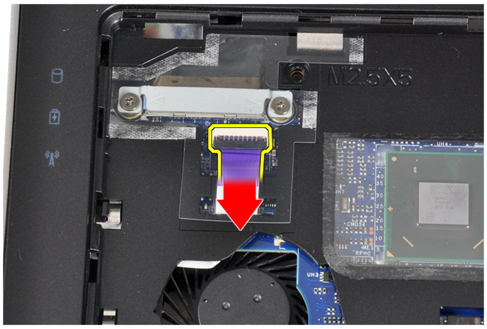
3. Remove the screws that secure the palmrest assembly to the base of the computer.



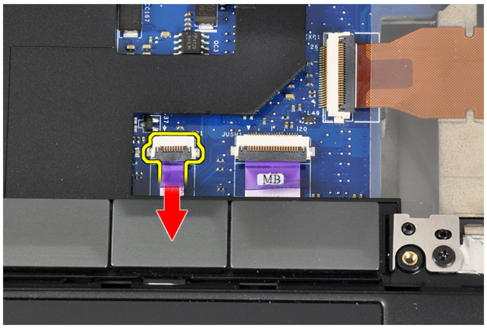
4. Remove the screws that secure the palmrest assembly to the front of the computer.



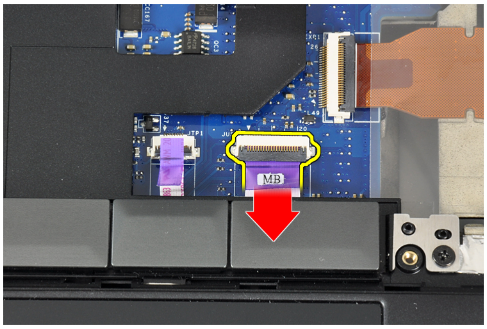
5. Disconnect the LED-board cable from the system board.



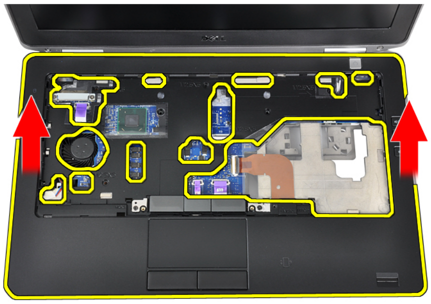
6. Disconnect the touchpad cable from the system board.



7. Disconnect the power LED cable from the system board.



8. Lift the palmrest up and away from the computer.



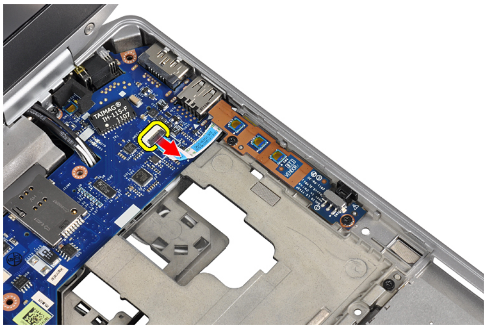
Installing the Palmrest

1. Align the palmrest assembly to its original position in the computer and snap it into place.
2. Connect the following cables to the system board:
   a) power LED cable
   b) touchpad cable
   c) LED-board cable
3. Tighten the screws to secure the palmrest assembly to the front of the computer.
4. Tighten the screws to secure the palmrest assembly to the base of the computer.
5. Install:
   a) bluetooth module
   b) keyboard
   c) keyboard trim
   d) base cover

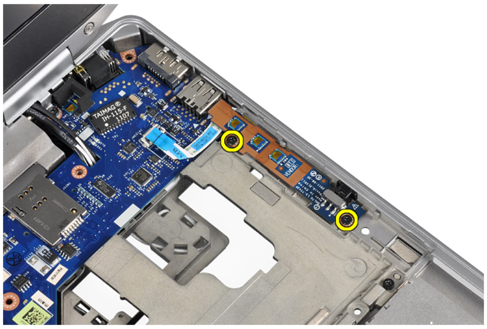
    e) optical drive
    f) hard drive
    g) battery
    h) ExpressCard
    i) SD card
6. Follow the procedures in *After Working Inside Your Computer*.

Removing the Media Board

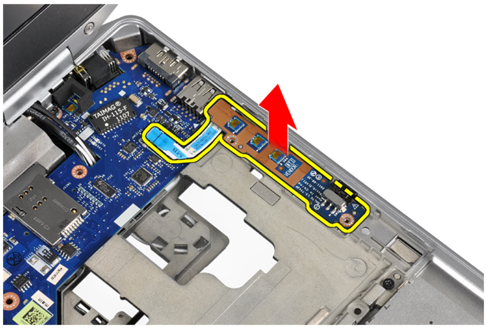
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
    a) SD card
    b) ExpressCard
    c) battery
    d) hard drive
    e) optical drive
    f) base cover
    g) keyboard trim
    h) keyboard
    i) bluetooth module
    j) palmrest
3. Disconnect the media-board cable from the system board.



4. Remove the screws that secure the media board to the computer.



5. Remove the media board from the computer.

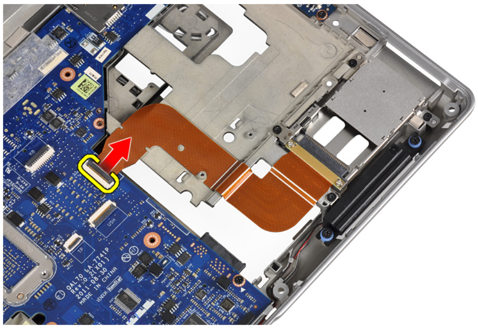


Installing the Media Board

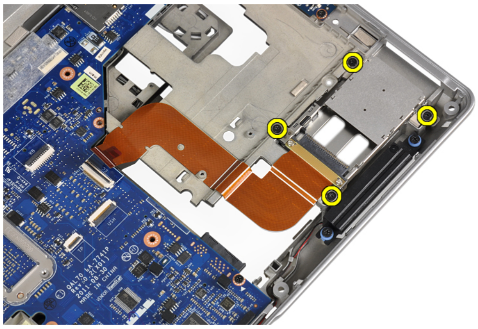
1. Place the media board in its compartment.
2. Tighten the screws to secure the media board.
3. Connect the media-board cable to the system board.
4. Install:
   a) palmrest
   b) bluetooth module
   c) keyboard
   d) keyboard trim
   e) base cover
   f) optical drive
   g) hard drive
   h) battery
   i) ExpressCard
   j) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the ExpressCard Cage

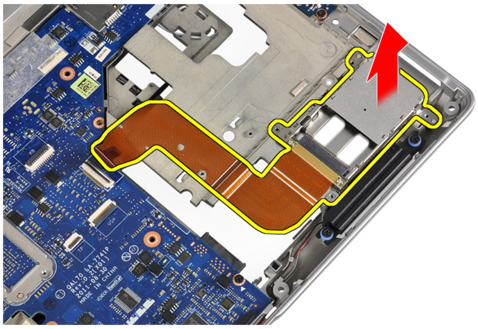
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module
   j) palmrest
3. Disconnect the ExpressCard cable from the system board.



4. Remove the screws that secure the ExpressCard cage to the computer.



5. Remove the ExpressCard cage from the computer.



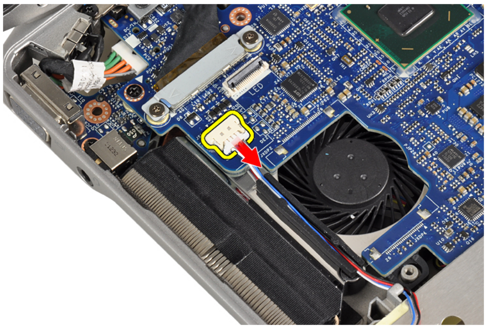
Installing the ExpressCard Cage

1. Insert the ExpressCard cage into its compartment.
2. Tighten the screws to secure the ExpressCard cage to the computer.
3. Connect the ExpressCard cable to the system board.
4. Install:
   a) palmrest
   b) bluetooth module
   c) keyboard
   d) keyboard trim
   e) base cover
   f) optical drive
   g) hard drive
   h) battery
   i) ExpressCard

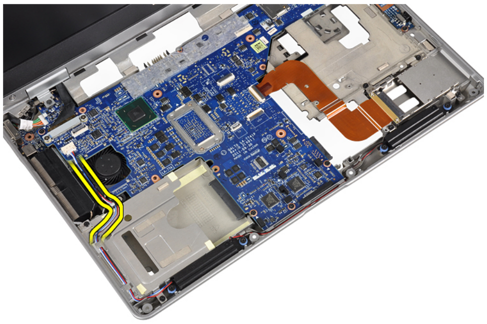
   j) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Speakers

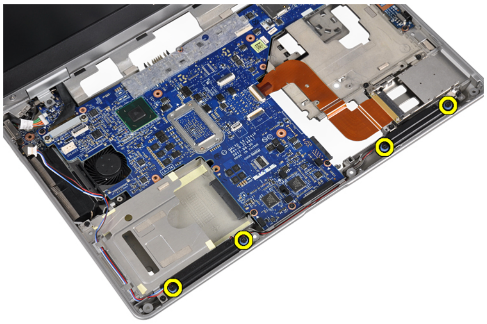
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module
   j) palmrest
3. Disconnect the speaker cable from the system board.



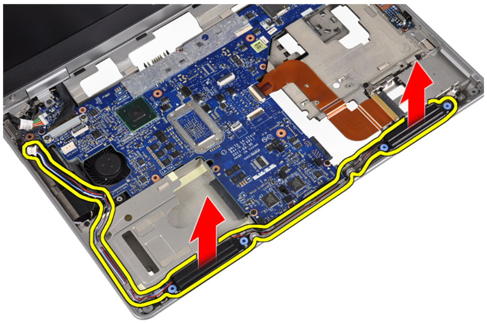
4. Release the speaker cable from the computer.



5. Remove the screws that secure the speakers to the computer.



6. Remove the speakers from the computer.



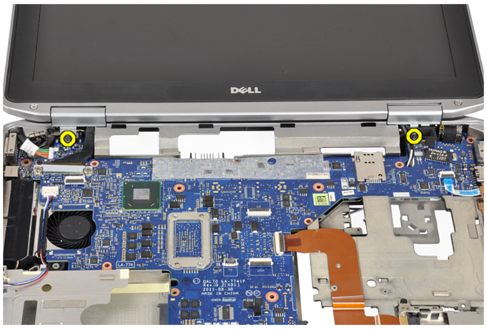
Installing the Speakers

1. Align the speakers to their original position and tighten the screws to secure the speakers to the computer.
2. Route the speaker cable on the computer and connect it to the system board.
3. Install:
   a) palmrest
   b) bluetooth module
   c) keyboard
   d) keyboard trim
   e) base cover
   f) optical drive
   g) hard drive
   h) battery
   i) ExpressCard
   j) SD card
4. Follow the procedures in *After Working Inside Your Computer*.

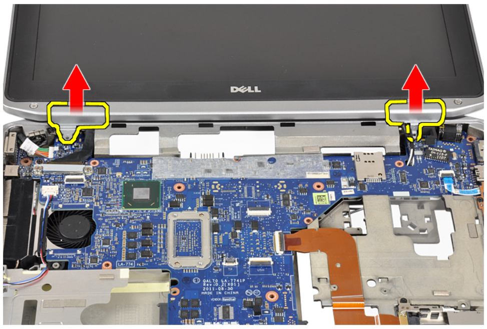
Removing the Display-Hinge Covers

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive

    f) base cover
    g) keyboard trim
    h) keyboard
    i) bluetooth module
    j) palmrest
3. Remove the screws that secure the display-hinge covers to the computer.



4. Remove the display-hinge covers from the computer.



Installing the Display Hinge Covers

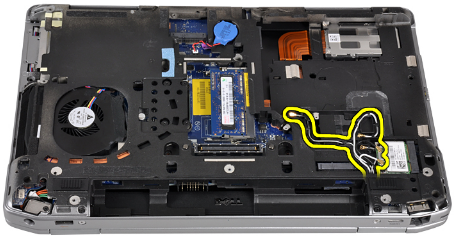
1. Tighten the screws to secure the display hinge covers to the computer.
2. Install:
    a) palmrest
    b) bluetooth module
    c) keyboard
    d) keyboard trim
    e) base cover
    f) optical drive
    g) hard drive
    h) battery
    i) ExpressCard
    j) SD card
3. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Assembly

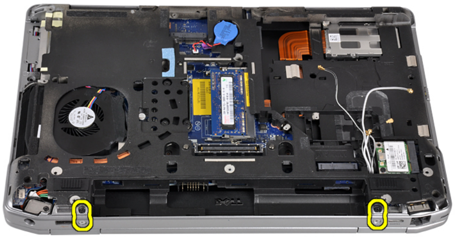
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:

   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module
   j) palmrest

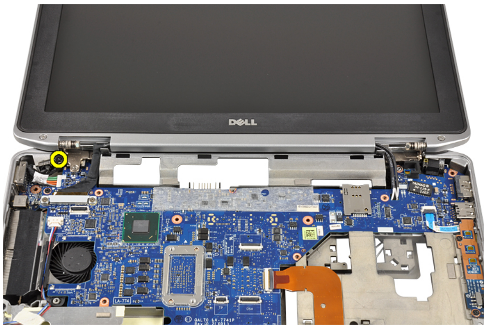
3. Release the antenna cables from their routing on the computer.



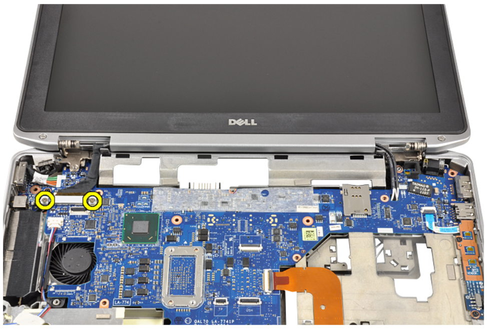
4. Remove the screws that secure the display assembly to the computer.



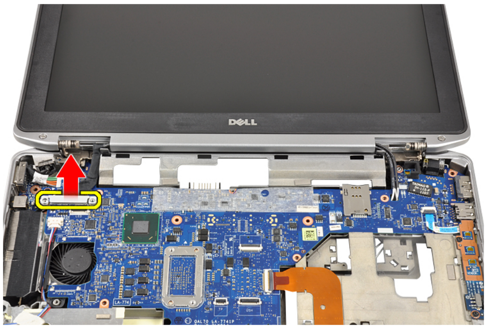
5. Remove the screw that secures the left display hinge to the computer.



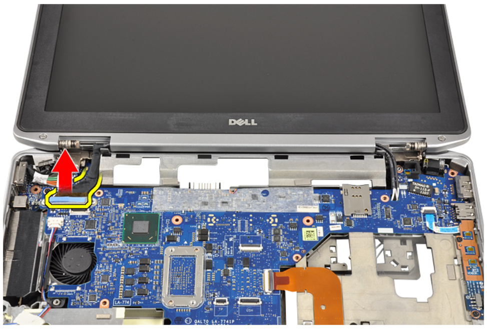
6. Remove the screws that secure the Low-Voltage Differential Signaling (LVDS) support bracket.



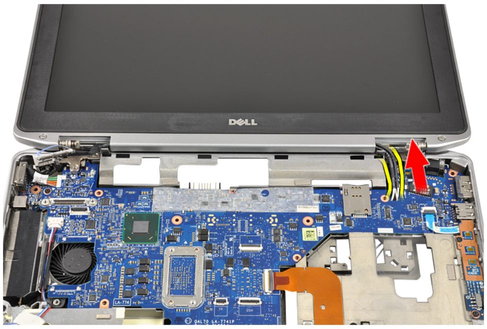
7. Lift up and remove the LVDS support bracket.



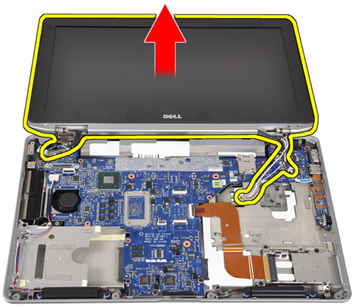
8. Disconnect the LVDS cable from the system board.



9. Pull the antenna cables from the opening on the system board.



10. Remove the display assembly from the computer.



Installing the Display Assembly

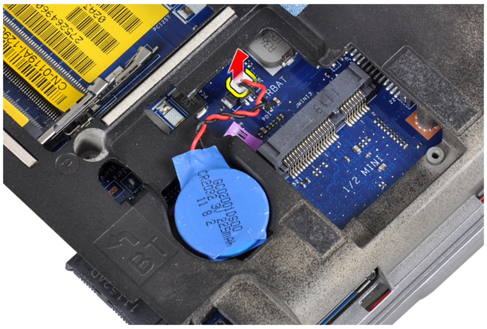
1. Route the antennae cables through the opening on the system board.
2. Connect the LVDS cable to the system board.
3. Tighten the screws to secure the LVDS support bracket to the system board.
4. Tighten the screw to secure the left display hinge to the computer.
5. Tighten the screws to secure the display assembly to the computer.
6. Route the antenna cables through their routing channel.
7. Install:
   a) palmrest
   b) bluetooth module
   c) keyboard
   d) keyboard trim
   e) base cover
   f) optical drive
   g) hard drive
   h) battery
   i) ExpressCard
   j) SD card
8. Follow the procedures in *After Working Inside Your Computer*.

Removing the System Board

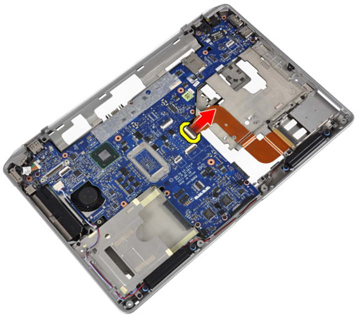
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module
   j) palmrest
   k) media board
   l) display-hinge covers

m) display assembly

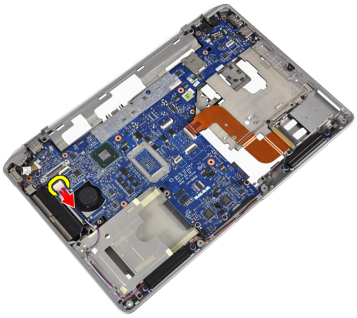
3. Disconnect the coin-cell battery cable from the system board.



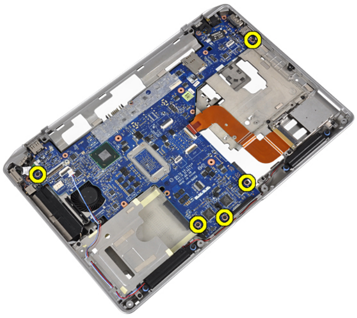
4. Disconnect the ExpressCard cable from the system board.



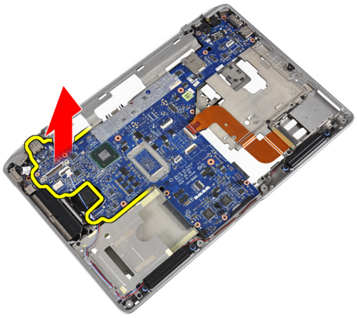
5. Disconnect the speaker cable from the system board.



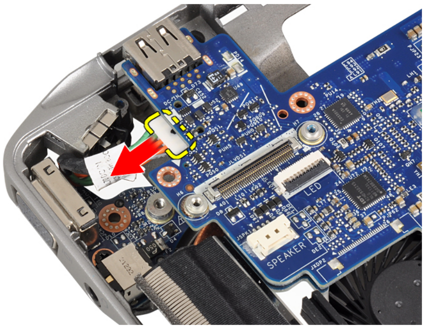
6. Remove the screws that secure the system board to the computer.



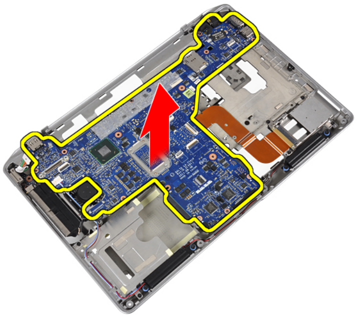
7. Lift the left edge of system board partially to a 45-degree angle.



8. Disconnect the power-connector cable from the system board.



9. Remove the system board from the computer.



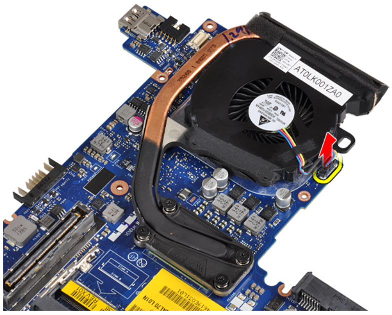
Installing the System Board

1. Connect the power connector cable to the system board.
2. Tighten the screws to secure the system board to the computer.
3. Connect the following cables to the system board:
   a) speaker
   b) ExpressCard
   c) coin-cell battery
4. Install :
   a) display assembly
   b) display hinge covers
   c) media board
   d) palmrest
   e) bluetooth module

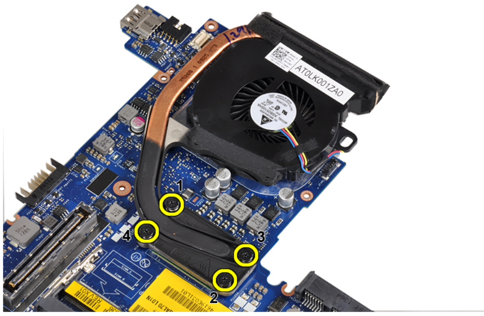
   f) keyboard
   g) keyboard trim
   h) base cover
   i) optical drive
   j) hard drive
   k) battery
   l) ExpressCard
   m) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Heat Sink

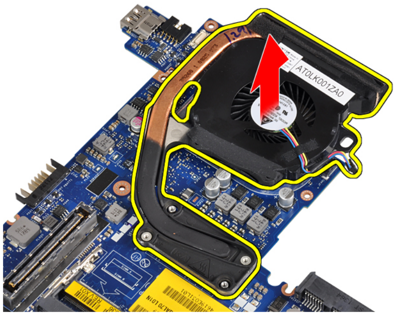
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module
   j) palmrest
   k) media board
   l) display hinge covers
   m) display assembly
   n) system board
3. Disconnect the heat sink cable from the system board.



4. Remove the screws that secure the heat sink to the system board.



5. Remove the heat sink from the system board.



Installing the Heat Sink

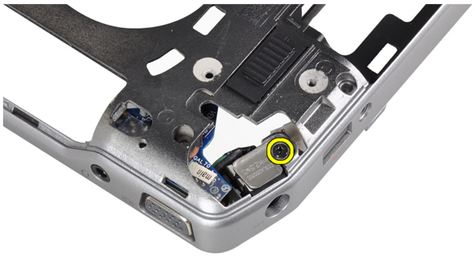
1. Place the heat sink into its original position on the system board.
2. Tighten the screws to secure the heat sink to the system board
3. Connect the heat-sink cable to the system board.
4. Install:
   a) system board
   b) display assembly
   c) display hinge covers
   d) media board
   e) palmrest
   f) bluetooth module
   g) keyboard
   h) keyboard trim
   i) base cover
   j) optical drive
   k) hard drive
   l) battery
   m) ExpressCard
   n) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Power Connector Port

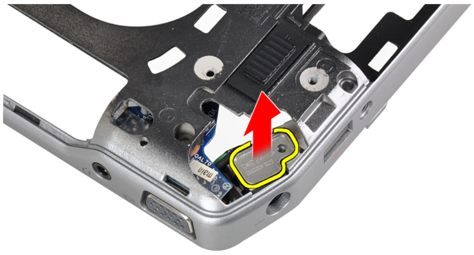
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module
   j) palmrest

    k) media board
    l) display hinge covers
    m) display assembly
    n) system board

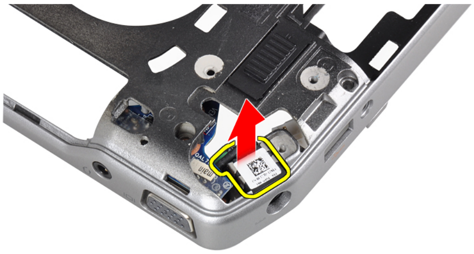
3. Remove the screw that secures the power connector port to the computer.



4. Remove the power connector bracket from the computer.



5. Remove the power connector port from the computer.



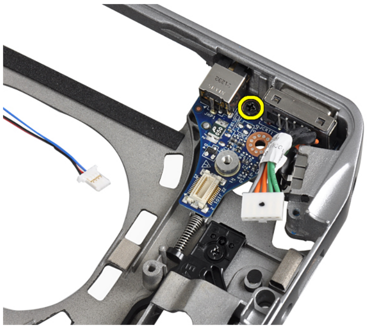
Installing the Power-Connector Port

1. Place the power-connector port on the computer.
2. Place the power-connector bracket over the power-connector port.
3. Tighten the screw to secures the power-connector bracket to the computer.
4. Install:
    a) system board
    b) display assembly
    c) display hinge covers

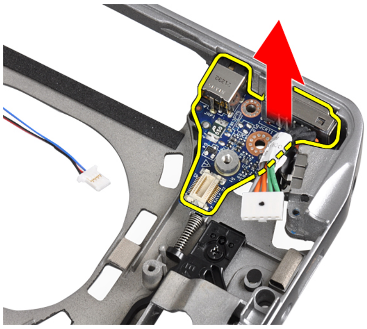
    d) media board
    e) palmrest
    f) bluetooth module
    g) keyboard
    h) keyboard trim
    i) base cover
    j) optical drive
    k) hard drive
    l) battery
    m) ExpressCard
    n) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Input/Output (I/O) Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
    a) SD card
    b) ExpressCard
    c) battery
    d) hard drive
    e) optical drive
    f) base cover
    g) keyboard trim
    h) keyboard
    i) bluetooth module
    j) palmrest
    k) media board
    l) display hinge covers
    m) display assembly
    n) system board
3. Remove the screw that secures the I/O board to the computer.



4. Remove the I/O board from the computer.

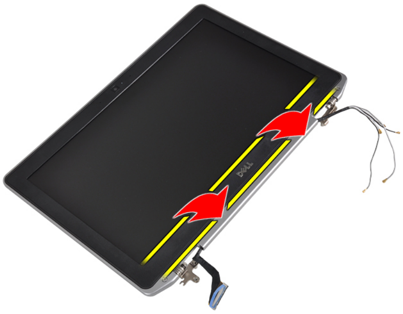


Installing the I/O Board

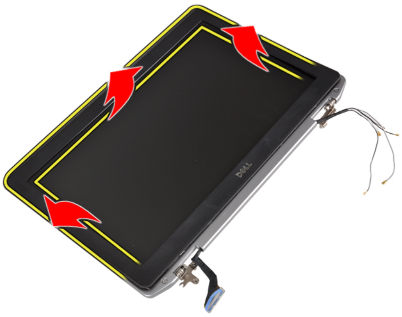
1. Place the I/O board in its compartment.
2. Tighten the screws to secure the I/O board.
3. Install:
   a) system board
   b) display assembly
   c) display hinge covers
   d) media board
   e) palmrest
   f) bluetooth module
   g) keyboard
   h) keyboard trim
   i) base cover
   j) optical drive
   k) hard drive
   l) battery
   m) ExpressCard
   n) SD card
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Bezel

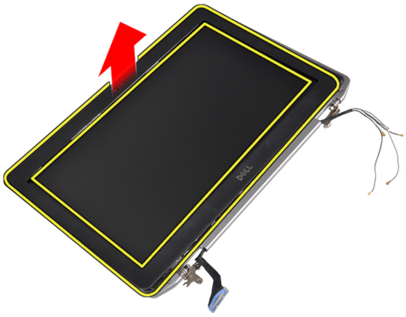
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Pry up the bottom edge of the display bezel.



4. Pry up the left, right and top edges of the LCD bezel.



5. Remove the display bezel from the display assembly.

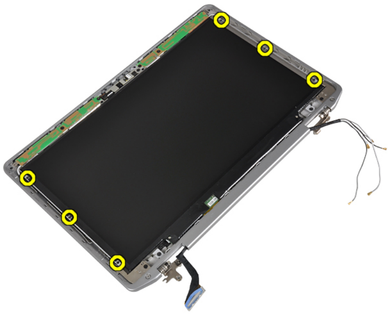


Installing the Display Bezel

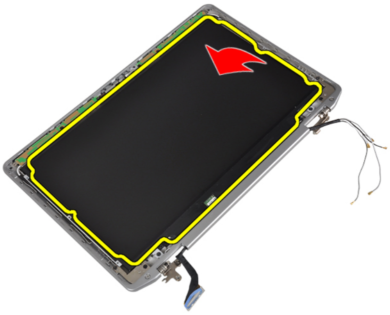
1. Place the display bezel onto the display assembly.
2. Starting from the top corner, press on the display bezel and work around the entire bezel until it clicks onto the display assembly.
3. Press on the left and right edges of the display bezel.
4. Install the battery.
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Panel

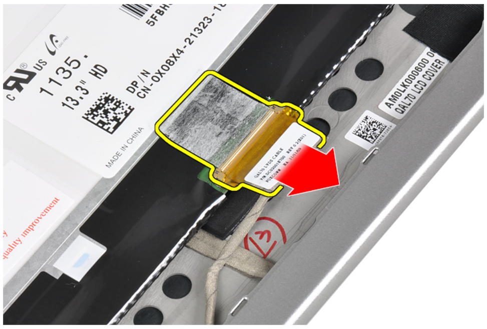
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Remove the display bezel.
4. Remove the screws that secure the display panel to the display assembly.



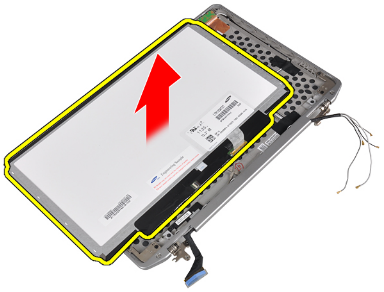
5. Flip and place the display panel over.



6. Peel off the LVDS cable connector tape and disconnect the LVDS cable from the display panel.



7. Remove the display panel from the display assembly.

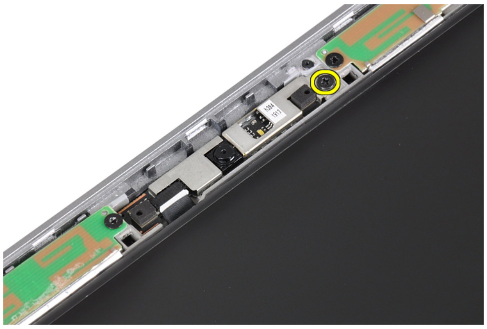


Installing the Display Panel

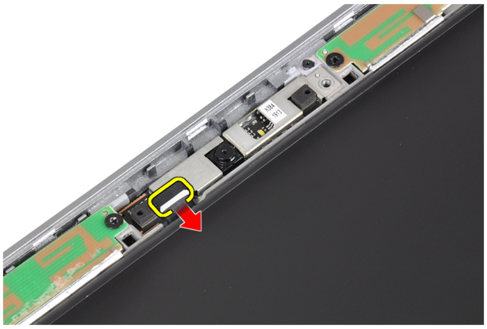
1. Connect the display cable (LVDS cable) to its connector on the display panel.
2. Place the display panel to its original position on the display assembly.
3. Tighten the screws to secure the display panel to the display assembly.
4. Install :
   a) display bezel
   b) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Camera and Microphone Module

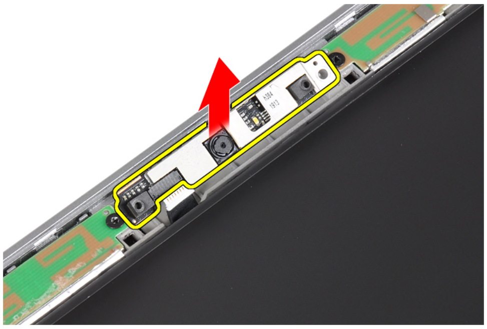
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) display bezel
3. Remove the screws that secure the camera and microphone module to the display assembly.



4. Disconnect the camera and microphone module cable from the module.



5. Remove the camera and microphone module from the display assembly.



Installing the Camera and Microphone Module

1. Install the camera and microphone module into its slot on the display panel.
2. Tighten the screw to secure the camera to the display assembly.
3. Connect the camera and microphone cable to the camera.
4. Install:

   a) display bezel
   b) battery

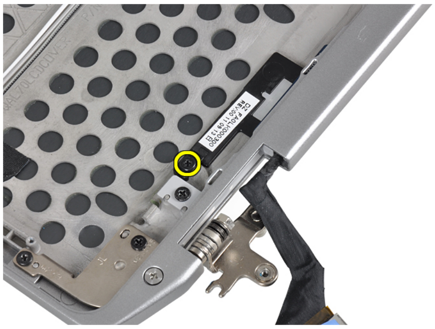
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the LED Board

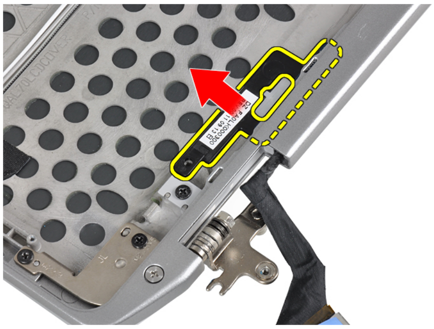
1. Follow the procedures in *Before Working Inside Your Computer*.

2. Remove:
   a) battery
   b) display bezel
   c) display panel

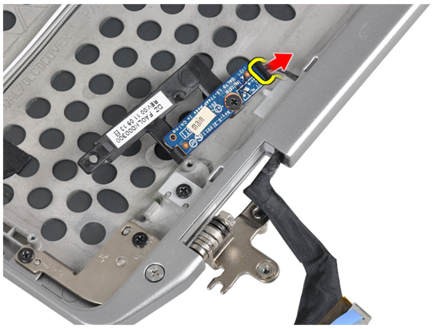
3. Remove the screw that secures the LED board to the display assembly.



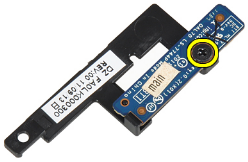
4. Remove the LED-board support plate from the display assembly.



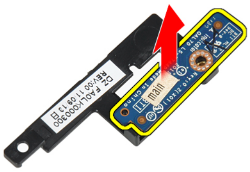
5. Disconnect the LED-board cable from the LED board.



6. Remove the screw that secures the LED board to the LED-board support plate.



7. Remove the LED board from the LED-board support plate.



Installing the LED Board

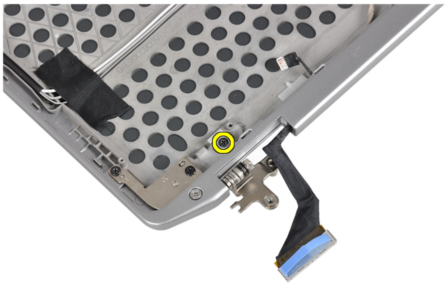
1. Tighten the screw to secure the LED board to the LED board support plate.
2. Place the LED board plate in its compartment in the display assembly.
3. Connect the LED board cable to the LED board.
4. Tighten the screw to secure the LED board support plate to the display assembly.
5. Install:
   a) display panel
   b) display bezel
   c) battery
6. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display-Hinge Walls

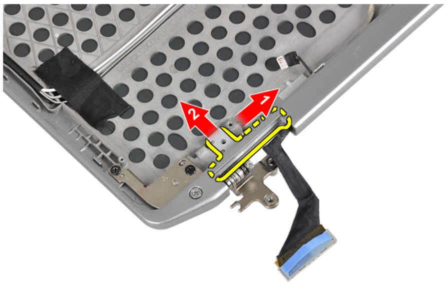
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module

j) palmrest
k) media board
l) display hinge covers
m) display assembly
n) display bezel
o) display panel
p) power LED board

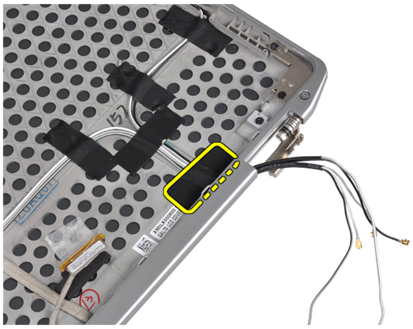
3. Remove the screw that secures the left display-hinge wall to the display assembly.



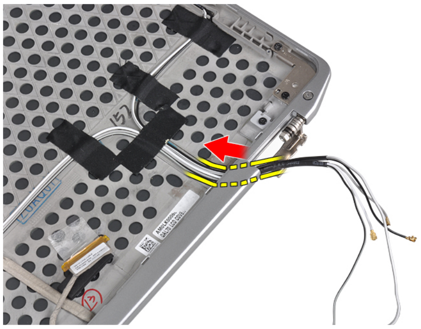
4. Slide and remove the left display-hinge wall out of the display assembly.



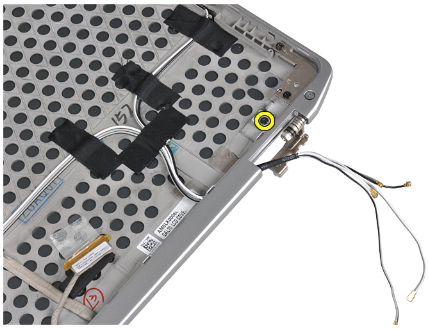
5. Peel off the adhesive tape that secures the antenna cables to the display assembly.



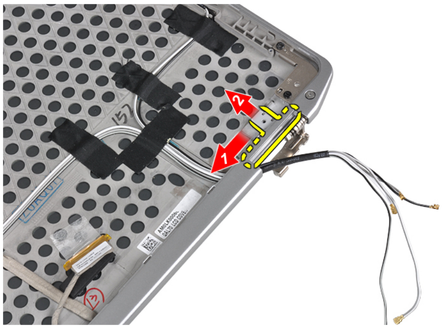
6. Remove the antenna cables from the opening in the right display-hinge wall.



7. Remove the screw that secures the right display-hinge wall to the display assembly.



8. Slide and remove the right display-hinge wall out of the display assembly.



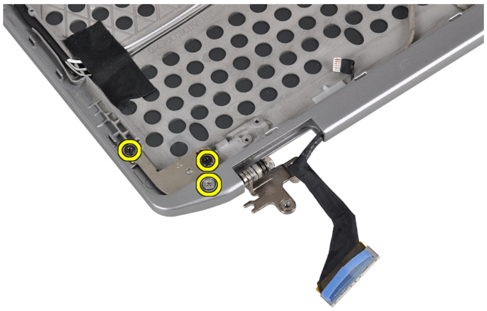
Installing the Display-Hinge Walls

1. Place both the display-hinge walls on the panel.
2. Insert the antenna cables into their opening on the right display-hinge wall and secure them using the adhesive tape to the display assembly.
3. Tighten the screws to secure the display-hinge walls to secure them to the display assembly.
4. Install:
    a) power LED board
    b) display panel
    c) display bezel
    d) display assembly
    e) display hinge covers
    f) media board
    g) palmrest
    h) bluetooth module

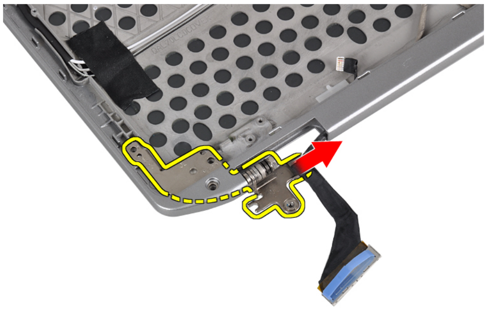
    i) keyboard
    j) keyboard trim
    k) base cover
    l) optical drive
    m) hard drive
    n) battery
    o) ExpressCard
    p) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Hinges

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
    a) SD card
    b) ExpressCard
    c) battery
    d) hard drive
    e) optical drive
    f) base cover
    g) keyboard trim
    h) keyboard
    i) bluetooth module
    j) palmrest
    k) media board
    l) display hinge covers
    m) display assembly
    n) display bezel
    o) display panel
    p) power LED board
3. Remove the screw that secures the left display hinge to the display assembly.



4. Remove the left display hinge wall out of the display assembly.



5. Repeat steps 3 and 4 to remove the right display hinge.

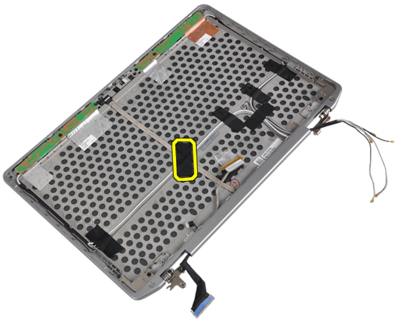
Installing the Display Hinges

1. Place both the display hinges on the panel.
2. Tighten the screws to secure the display hinges.
3. Install:
   a) power LED board
   b) display panel
   c) display bezel
   d) display assembly
   e) display hinge covers
   f) media board
   g) palmrest
   h) bluetooth module
   i) keyboard
   j) keyboard trim
   k) base cover
   l) optical drive
   m) hard drive
   n) battery
   o) ExpressCard
   p) SD card
4. Follow the procedures in *After Working Inside Your Computer*.

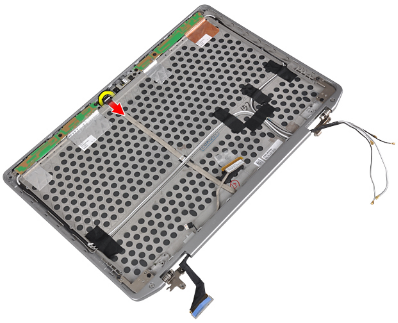
Removing the LVDS and Camera Cable

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) SD card
   b) ExpressCard
   c) battery
   d) hard drive
   e) optical drive
   f) base cover
   g) keyboard trim
   h) keyboard
   i) bluetooth module

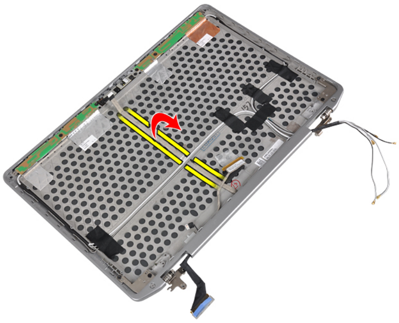
   j) palmrest
   k) media board
   l) display hinge covers
   m) display assembly
   n) display bezel
   o) display panel
   p) power LED board
   q) display hinge walls
3. Remove the adhesive tape that secures LVDS and camera cable to the display assembly.



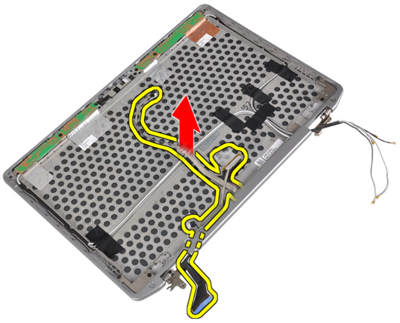
4. Disconnect the camera cable from camera and microphone module.



5. Pry up the LVDS and camera cable from the display assembly.



6. Remove the LVDS and camera cable from the display assembly cover.



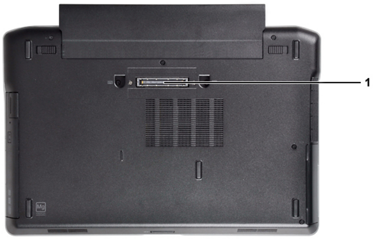
Installing the LVDS and Camera Cable

1. Route the LVDS and camera cable on the display assembly.
2. Fix the adhesive the tape to secure the cable.
3. Connect the LVDS and camera cable to the camera and microphone module.
4. Install:
    a) display hinge walls
    b) power LED board
    c) display panel
    d) display bezel
    e) display assembly
    f) display hinge covers
    g) media board
    h) palmrest
    i) bluetooth module
    j) keyboard
    k) keyboard trim
    l) base cover
    m) optical drive
    n) hard drive
    o) battery
    p) ExpressCard
    q) SD card
5. Follow the procedures in *After Working Inside Your Computer*.

3

Docking Port Information

The docking port is used for connecting the laptop to a docking station (optional).



1. Docking Port

4

System Setup

System Setup enables you to manage your computer hardware and specify BIOS-level options. From the System Setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing <F2> key
- Bring up the one-time boot menu by pressing <F12> key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot-menu options are:

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXX denotes the SATA drive number.
- Optical Drive
- Diagnostics

  NOTE: Choosing Diagnostics, will display the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

Navigation Keys

The following table displays the system setup navigation keys.

NOTE: For most of the system setup options, changes that you make are recorded but do not take effect until you re-start the system.

Table 1. Navigation Keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.

Keys	Navigation
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
<Tab>	Moves to the next focus area. **NOTE:** For the standard graphics browser only.
<Esc>	Moves to the previous page till you view the main screen. Pressing <Esc> in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
<F1>	Displays the System Setup help file.

System Setup Options

NOTE: Depending on your computer and its installed devices, the items listed in this section may or may not appear.

Table 2. General

Option	Description
System Information	This section lists the primary hardware features of your computer. • System Information • Memory Information • Processor Information • Device Information
Battery Information	Displays the charge status of the battery.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. All the below options are selected. • Diskette Drive • Internal HDD • USB Storage Device • CD/DVD/CD-RW Drive • Onboard NIC You can also choose the Boot List option. The options are: • **Legacy** (Default Setting) • UEFI
Date/Time	Allows you to set the date and time.

Table 3. System Configuration

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are:

Option	Description
	• Disabled • Enabled • **Enabled w/PXE** (Default Setting)
Parallel Port	Allows you to define and set how the parallel port on the docking station operates. You can set the parallel port to: • Disabled • **AT** • PS2 • ECP
Serial Port	Identifies and defines the serial port settings. You can set the serial port to: • Disabled • **COM1** (Default Setting) • COM2 • COM3 • COM4 **NOTE:** The operating system may allocate resources even if the setting is disabled.
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • Disabled • ATA • AHCI • **RAID On** (Default Setting) **NOTE:** SATA is configured to support RAID mode.
Drives	Allows you to configure the SATA drives on board. The options are: • SATA-0 • SATA-1 • SATA-4 • SATA-5 Default Setting: All drives are enabled.
SMART Reporting	This field controls if the hard drive errors for the integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification.

Option	Description
	• **Enable SMART Reporting** - This option is disabled by default.
USB Configuration	Allows you to define the USB configuration. The options are: • Enable Boot Support • Enable External USB Port Default Setting: both the options are enabled.
USB PowerShare	Allows you to configure the behavior of the USB PowerShare feature. The option is disabled by default. • Enable USB PowerShare
Keyboard Illumination	Allows you to choose the operating mode of the keyboard illumination feature. The options are: • **Disabled** (Default Setting) • Level is 25% • Level is 50% • Level is 75% • Level is 100%
Stealth Mode Control	Allows you to set the mode that will turn off all light and sound emissions from the system. The option is disabled by default. • Enable Stealth Mode
Miscellaneous Devices	Allows you enable or disable the various on board devices. The options are: • Enable Internal Modem • Enable Microphone • Enable eSATA Ports • Enable Hard Drive Free Fall Protection • Enable Module Bay • Enable ExpressCard • Enable Camera • Enable Media Card • Disable Media Card Default Setting: All devices are enabled

Table 4. Video

Option	Description
LCD Brightness	Allows you to set the panel brightness when the ambient sensor is Off.
Optimus	Allows you to enable or disable the NVIDIA Optimus technology. • **Enable Optimus** - Default Setting.

Table 5. Security

Option	Description
Intel TXT (LT-SX) Configuration	This option is disabled by default.
Admin Password	Allows you to set, change, or delete the administrator (admin) password. **NOTE:** You must set the admin password before you set the system or hard drive password. **NOTE:** Successful password changes take effect immediately. **NOTE:** Deleting the admin password automatically deletes the system password and the hard drive password. **NOTE:** Successful password changes take effect immediately. Default Setting: **Not set**
System Password	Allows you to set, change or delete the system password. **NOTE:** Successful password changes take effect immediately. Default Setting: **Not set**
Internal HDD-0 Password	Allows you to set, change or delete the administrator password. Default Setting: **Not set**
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: **Enable Strong Password** is not selected.
Password Configuration	You can define the length of your password. Min = 4 , Max = 32
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: • **Disabled** (Default Setting) • Reboot bypass
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. Default Setting: **Allow Non-Admin Password Changes** is not selected
Non-Admin Setup Changes	Allows you to determine whether changes to setup option are permitted when an administrator password is set. The option is disabled. • Allows Wireless Switch Changes
TPM Security	Allows you to enable the Trusted Platform Module (TPM) during POST. Default Setting: The option is disabled.
CPU XD Support	Allows you to enable the Execute Disable mode of the processor.

Option	Description
	Default Setting: **Enable CPU XD Support**
Computrace	Allows you to activate or disable the optional Computrace software The options are: - **Deactivate** (Default Setting) - Disable - Activate **NOTE:** The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Default Setting: **Enable CPU XD Support**
OROM Keyboard Access	Allows you to set access to enter the Option ROM Configuration screens using hotkeys during boot process. The options are: - **Enable** (Default Setting) - One Time Enable - Disable
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: **Disabled**

Table 6. Performance

Option	Description
Multi Core Support	This field specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor. The options are: - **All** (Default Setting) - 1 - 2
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. Default Setting: **Enable Intel SpeedStep**
C States Control	Allows you to enable or disable the additional processor sleep states. Default Setting: The options **C states**, **C3**, **C6**, **Enhanced C-states**, and **C7** options are enabled.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. Default Setting: **Enable Intel TurboBoost**

Option	Description
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. Default Setting: **Enabled**

Table 7. Power Management

Option	Description
AC Behavior	Allows the computer to power-uon automatically, when AC adapter is plugged. The option is disabled. • Wake on AC
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • **Disabled** (Default Setting) • Every Day • Weekdays
USB Wake Support	Allows you to enable the USB devices to wake the computer from standby mode. The option is disabled • Enable USB Wake Support
Wireless Radio Control	Allows you to control the WLAN and WWAN radio. The options are: • Control WLAN radio • Control WWAN radio Default Setting: both the options are disabled.
Wake on LAN/WLAN	This option allows the computer to power up from the off state when triggered by a special LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. This feature only works when the computer is connected to AC power supply. • **Disabled** - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN. (Default Setting) • LAN Only - Allows the system to be powered on by special LAN signals. • WLAN Only • LAN or WLAN
Block Sleep	Allows you to block the computer from entering into the sleep state. Option is disabled by default. • Block Sleep (S3)
Primary Battery Configuration	Allows you to define how to use the battery charge, when AC is plugged in. The options are: • Standard Charge • Express Charge • Predominantly AC use • **Auto Charge** (Default Setting)

Option	Description
	• Custom Charge — you can set the percentage to which the battery must charge . **NOTE:** All charging modes may not be available for all the batteries.
Battery Slice Configuration	Allows you to define the how to charge the battery. The options are: • Standard Charge • **Express Charge** (Default Setting)

Table 8. POST Behavior

Option	Description
Adapter Warnings	Allows you to activate the adapter warning messages when certain power adapters are used. The option is enabled by default. • Enable Adapter Warnings
Mouse/Touchpad	Allows you to define how the computer handles the mouse and touchpad input. The options are: • Serial Mouse • PS2 Mouse • **Touchpad/PS-2 Mouse** (Default Setting)
Numlock Enable	Specifies if the NumLock function can be enabled when the computer boots. This option is enabled by default. • Enable Numlock
Fn Key Emulation	Allows you to match the <Scroll Lock> key feature of PS-2 keyboard with the <Fn> key feature in an internal keyboard. The option is enabled by default. • Enable Fn Key Emulation
Keyboard Errors	Specifies whether keyboard related errors are reported when it boots. This option is enabled by default. • Enable Keyboard Error Detection
POST Hotkeys	Specifies whether the sign-on screen displays a message, that displays the keystroke sequence required to enter the BIOS Boot Option Menu. • **Enable F12 Boot Option menu** - This option is enabled by default.
Fastboot	Allows you to speed up the boot processes. The options are: • Minimal • **Thorough** (Default Setting) • Auto

Table 9. Virtualization Support

Option	Description
Virtualization	This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization technology. • **Enable Intel Virtualization Technology** - Default Setting.
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel Virtualization technology for direct I/O. • **Enable Intel Virtualization Technology for Direct I/O** - Default Setting.

Table 10. Wireless

Option	Description
Wireless Switch	Allows you to determine which wireless device can be controlled by the wireless switch. The options are: • WWAN • Bluetooth • WLAN All options are enabled by default.
Wireless Device Enable	Allows you to enable or disable the wireless devices. The options are: • WWAN • Bluetooth • WLAN All options are enabled by default.

Table 11. Maintenance

Option	Description
Service Tag	Displays the service tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.

Table 12. System Logs

Option	Description
BIOS events	Displays the system event log and allows you to clear the log. • Clear Log

Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet

1. Re-start the computer.
2. Go to **dell.com/support**.
3. Enter the **Service Tag** or **Express Service Code** and click **Submit**.

   NOTE: To locate the Service Tag, click **Where is my Service Tag?**

   NOTE: If you cannot find your Service Tag, click **Detect Service Tag**. Proceed with the instructions on screen.
4. If you are unable to locate or find the Service Tag, click the Product Category of your computer.
5. Choose the **Product Type** from the list.
6. Select your computer model and the **Product Support** page of your computer appears.
7. Click **Drivers & Downloads**.
8. On the Drivers and Downloads screen, under the **Operating System** drop-down list, select **BIOS**.
9. Identify the latest BIOS file and click **Download File**.
10. Select your preferred download method in the **Please select your download method below window**; click **Download File**.

    The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.

    Follow the instructions on the screen.

System and Setup Password

You can create a system password and a setup password to secure your computer.

Password Type	Description
System password	Password that you must enter to log on to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

CAUTION: The password features provide a basic level of security for the data on your computer.

CAUTION: Anyone can access the data stored on your computer if it is not locked and left unattended.

NOTE: Your computer is shipped with the system and setup password feature disabled.

Assigning a System Password and Setup Password

You can assign a new **System Password** and/or **Setup Password** or change an existing **System Password** and/or **Setup Password** only when **Password Status** is **Unlocked**. If the Password Status is **Locked**, you cannot change the System Password.

NOTE: If the password jumper is disabled, the existing System Password and Setup Password is deleted and you need not provide the system password to log on to the computer.

To enter a system setup, press <F2> immediately after a power-on or re-boot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press <Enter>.
   The **System Security** screen appears.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password** , enter your system password, and press <Enter> or <Tab>.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.
   - Only the following special characters are allowed: space, (”), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).

   Re-enter the system password when prompted.
4. Type the system password that you entered earlier and click **OK**.
5. Select **Setup Password**, type your system password and press <Enter> or <Tab>.
   A message prompts you to re-type the setup password.
6. Type the setup password that you entered earlier and click **OK**.
7. Press <Esc> and a message prompts you to save the changes.
8. Press <Y> to save the changes.
   The computer reboots.

Deleting or Changing an Existing System and/or Setup Password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press <F2> immediately after a power-on or reboot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press <Enter>.
   The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press <Enter> or <Tab>.
4. Select **Setup Password**, alter or delete the existing setup password and press <Enter> or <Tab>.

   NOTE: If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.
5. Press <Esc> and a message prompts you to save the changes.
6. Press <Y> to save the changes and exit from the System Setup.
   The computer reboots.

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Diagnostics

If you experience a problem with your computer, run the ePSA diagnostics before contacting Dell for technical assistance. The purpose of running diagnostics is to test your computer's hardware without requiring additional equipment or risking data loss. If you are unable to fix the problem yourself, service and support personnel can use the diagnostics results to help you solve the problem.

Enhanced Pre-Boot System Assessment (ePSA) Diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

⚠ **CAUTION: Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.**

NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

1. Power-on the computer.
2. As the computer boots, press the <F12> key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.

   The **Enhanced Pre-boot System Assessment** window is displayed, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. If you wish to run a diagnostic test on a specific device, press <Esc> and click **Yes** to stop the diagnostic test.
5. Select the device from the left pane and click **Run Tests**.
6. If there are any issues, error codes are displayed.

   Note the error code and contact Dell.

Device Status Lights

Table 13. Device Status Lights

⏻	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
⛁	Turns on when the computer reads or writes data.

🔋	Turns on steadily or blinks to indicate battery charge status.
📶	Turns on when wireless networking is enabled.

The device status LEDs are usually located either on the top or left side of the keyboard. They are used to display the storage, battery and wireless devices connectivity and activity. Apart from that they can be useful as a diagnostic tool when there's a possible failure to the system.

The following table lists how to read the LED codes when possible errors occur.

Table 14. LED Lights

Storage LED	Power LED	Wireless LED	Fault Description
Blinking	Solid	Solid	A possible processor failure has occurred.
Solid	Blinking	Solid	The memory modules are detected but has encountered an error.
Blinking	Blinking	Blinking	A system board failure has occurred.
Blinking	Blinking	Solid	A possible graphics card/video failure has occurred.
Blinking	Blinking	Off	System failed on hard drive initialization OR System failed in Option ROM initialization.
Blinking	Off	Blinking	The USB controller encountered a problem during initialization.
Solid	Blinking	Blinking	No memory modules are installed/detected.
Blinking	Solid	Blinking	The display encountered a problem during initialization.
Off	Blinking	Blinking	The modem is preventing the system from completing POST
Off	Blinking	Off	Memory failed to initialize or memory is unsupported.

Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

Alternately blinking amber light and white light	An unauthenticated or unsupported non-Dell AC adapter is attached to your laptop.
Alternately blinking amber light with steady white light	Temporary battery failure with AC adapter present.
Constantly blinking amber light	Fatal battery failure with AC adapter present.
Light off	Battery in full charge mode with AC adapter present.
White light on	Battery in charge mode with AC adapter present.

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Technical Specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For comprehensive specification of your computer go to **Specifications'** section in your **Owner's Manual** available on the support site at **dell.com/support**. For more information about the configuration of your computer, go to **Help and Support** in your Windows operating system and select the option to view information about your computer.

System Information	
Chipset	Mobile Intel 7 series chipset
DRAM bus width	64-bit
Flash EPROM	SPI 64 Mbits
PCIe Gen1 bus	100 MHz
External Bus Frequency	DMI (5 GT/s)

Processor	
Types	• Intel Core i3 series • Intel Core i5 series • Intel Core i7 series
L3 cache	up to 4 MB
External bus frequency	1333 MHz

Memory	
Memory connector	two SODIMM slots
Memory capacity	1 GB, 2 GB, or 4 GB
Memory type	DDR3 SDRAM (1600 MHz)
Minimum memory	2 GB
Maximum memory	16 GB

Audio	
Type	four-channel high-definition audio
Controller	IDT92HD93
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interface:	

Audio	
Internal	high-definition audio
External	microphone-in/stereo headphones/external speakers connector
Speakers	two
Internal speaker amplifier	1 W (RMS) per channel
Volume controls	keyboard function keys, program menus

Video	
Type	integrated on system board
Controller	Intel HD Graphics

Communications	
Network adapter	10/100/1000 Mb/s Ethernet (RJ-45)
Wireless	internal wireless local area network (WLAN) and wireless wide area network (WWAN)

Ports and Connectors	
Audio	one microphone/stereo headphone/speakers connector
Video:	
Latitude E6230	one 19-pin HDMI connector and one VGA connector
Latitude E6330	one 19-pin mini-HDMI connector and one VGA connector
Network adapter	one RJ-45 connector
USB	two USB 3.0-compliant connectors and one eSATA/USB 2.0 compliant- connector
Memory card reader	one 8-in-1 memory card reader
Docking port	one
Subscriber Identity Module (SIM) card	one

Contactless Smart Card	
Supported Smart Cards/Technologies	ISO14443A — 106 kbps, 212 kbps, 424 kbps, and 848 kbps ISO14443B — 106 kbps, 212 kbps, 424 kbps, and 848 kbps ISO15693 HID iClass FIPS201 NXP Desfire

Display	
Type	HD, WLED
Size	
Latitude E6230	12.5”

Display	
Latitude E6330	13.3"
Dimensions:	
Latitude E6230	
Height	300.90 mm (11.84 inches)
Width	180.00 mm (7.08 inches)
Diagonal	317.30 mm (12.49 inches)
Active area (X/Y)	276.61mm x 155.52 mm
Latitude E6330	
Height	314.10 mm (12.36 inches)
Width	188.70 mm (7.42 inches)
Diagonal	336.60 mm (13.25 inches)
Active area (X/Y)	293.42 mm x 164.97 mm
Maximum resolution	1366 x 768 pixels at 263 K colors
Maximum Brightness	200 nits
Operating angle	0° (closed) to 135°
Refresh rate	60 Hz
Minimum Viewing angles:	
Horizontal	+/- 40°
Vertical	+10°/-30°
Pixel pitch	0.2148 mm

Keyboard	
Number of keys	United States: 86 keys, United Kingdom: 87 keys, Brazil: 87 keys, and Japan: 90 keys
Layout	QWERTY/AZERTY/Kanji

Touchpad	
Active Area:	
X-axis	80.00 mm
Y-axis	40.70 mm

Battery	
Type	• 3-cell (32 WHr) Lithium-ion battery with ExpressCharge • 6-cell (65 WHr) Lithium-ion battery with ExpressCharge

Battery	
	- 6-cell (58 WHr) Lithium-ion battery
Dimensions:	
3-cell	
Depth	29.97 mm (1.18 inches)
Height	19.80 mm (0.78 inch)
Width	208.00 mm (8.19 inches)
6-cell	
Depth	54.10 mm (2.13 inches)
Height	20.85 mm (0.82 inch)
Width	214.00 mm (8.43 inches)
Weight:	
3-cell	172.37 g (0.38 lb)
6-cell	335.66 g (0.74 lb)
Voltage	11.10 VDC
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Non-Operating	–40 °C to 65 °C (–40 °F to 149 °F)
Coin-cell battery	3 V CR2032 lithium coin cell

AC Adapter	
Type	65 W and 90 W
Input voltage	100 VAC to 240 VAC
Input current (maximum)	1.50 A/1.60 A/1.70 A
Input frequency	50 Hz to 60 Hz
Output power	65 W and 90 W
Output current	3.34 A and 4.62 A (continuous)
Rated output voltage	19.5 +/– 1.0 VDC
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non-Operating	–40 °C to 70 °C (–40 °F to 158 °F)

Physical		
	Latitude E6230	Latitude E6330
Height	22.40 mm to 24.70 mm (0.88 inch to 0.97 inch)	25.40 mm to 30.10 mm (1 inch to 1.19 inches)
Width	309.00 mm (12.16 inches)	335.00 mm (13.19 inches)
Depth	226.00 mm (8.89 inches)	223.30 mm (8.79 inches)
Weight	1.43 kg (3.14 lb)	1.65 kg (3.64 lb)

Environmental	
Temperature:	
Operating	
Latitude E6230	10 °C to 35 °C (50 °F to 95 °F)
Latitude E6330	0 °C to 35 °C (32 °F to 95 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10 % to 90 % (non condensing)
Storage	5 % to 95 % (non condensing)
Altitude (maximum):	
Operating	–15.24 m to 3048 m (–50 ft to 10,000 ft)
Non-Operating	–15.24 m to 10,668 m (–50 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-71.04–1985

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Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **dell.com/support**
2. Select your support category.
3. Verify your country or region in the Choose a Country/Region drop-down menu at the top of page.
4. Select the appropriate service or support link based on your need.